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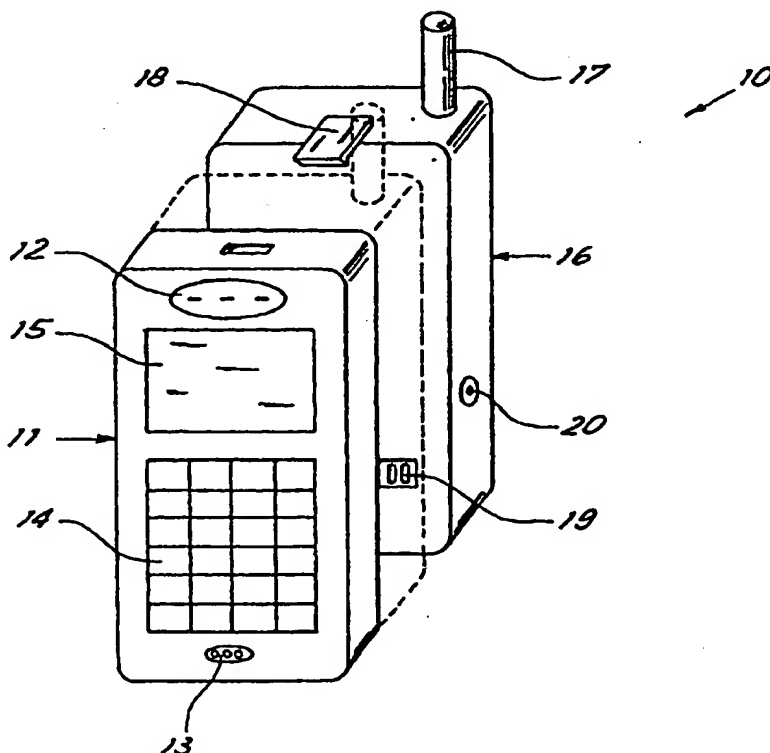
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- (81) Designated States (national): **AE, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.**

[Continued on next page]

(54) Title: **PORTABLE CELLULAR TELEPHONE AND COMMUNICATION SYSTEM THEREOF**



(57) Abstract: Portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first (11) and second part (16) being in bidirectional communication with each other when separated. According to the invention, said first part comprises means for wireless communication with a further station or network (22, 32).

WO 01/22694 A1



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— With international search report.

— Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## PORTABLE CELLULAR TELEPHONE AND COMMUNICATION SYSTEM THEREOF

### DESCRIPTION

The present invention relates to a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks.

In recent times, telecommunications networks have experienced an extremely fast development spreading to every society level and making available to subscribers a large number of remote access services through special terminals.

Said telematic services range from Internet connectivity to interactions with other  
5 network types, which may be identified by a wide geographical coverage, such as a cellular telephone network, or have a local diffusion, such as a company network, or just be simple stations for supplying said services, such as a computer. Also the services having access through special smartcards connected with the terminals are included in this range of telematic services.

10 Therefore, subscribers need to use a plurality of terminals to provide interaction with said telematic services, involving consequent encumbrance and managing problems.

In addition, some of these terminals, in particular those using radio transmissions, such as cellular telephones, expose the subscriber's body to very close radio emissions. Therefore, it is obvious how such exposures are dangerous for the subscriber and how,  
15 increasing the number of terminals determining such harmful radio emissions in contact with the subscriber, would be extremely harmful.

It is the object of the present invention to solve the above drawbacks and provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, having a more efficient and  
20 improved performance with respect to existing solutions.

In this frame, it is the main object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks allowing concentration of the terminals required for subscriber's interaction with the telematic services in one terminal alone,  
25 which is not harmful for the subscriber.

In order to achieve such aims, it is the object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the features of the annexed claims, which form an integral part of the description herein.

5 Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by way of non limiting example, wherein:

- Fig. 1 shows an exploded prospective view of a portable cellular telephone according to the present invention;
- 10 - Fig. 2 shows a side view of the telephone of Fig. 1;
- Fig. 3 shows a block diagram of the parts forming the telephone of Fig. 1;
- Fig. 4 shows a possible flow diagram of the portable cellular telephone according to the present invention;
- Fig. 5 shows a communication system with telematic services supplied by  
15 telecommunications stations and/or networks according to the present invention.

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks or stations associated to telematic services, which cellular telephone is apt to perform usual common terminal functions towards the cellular telephony network. According to the present invention, this cellular telephone  
20 can be separated in two sections, a first part concentrating the subscriber interface functions, said first section also comprising transceiving means towards further telecommunications networks or stations associated to distribution of telematic services, whereas the second part of the cellular telephone concentrates the power functions associated to the cellular telephone network, which are potentially harmful for the  
25 subscriber.

So, Figure 1 is representing a portable apparatus for cellular telephone, indicated in general with 10, which consists of a first part 11, comprising the telephone audio section, with earphone 12 and microphone 13, a keyboard 14 and an LCD display 15, i.e. the functions of subscriber interface functions, and a second part 16 containing the  
30 entire power radio section for reception and transmission from and to the cellular network. To this purpose, the second part comprises an appropriate antenna 17 and a GSM dual-band DCS transceiver. For simplicity's sake, reference will be made to GSM

system; however, any other standard already applied nowadays or to be applied in the future (such as UMTS standard) can be used. The antenna may be either "stubby" or "patch" type.

5 The first and second parts can be assembled together and separated from each other by means of clips indicated by way of example with 18. When separated, the first and second parts are in communication with each other by means of a wireless bi-directional connection.

10 This connection can be advantageously obtained by a low power radio link, such as at 2.4 GHz frequency with internal antennas, for example provided directly in the printed circuits of the apparatus. Connection can be obtained with any desired protocol, preferably an encrypted -protocol, obtaining e.g. a BlueTooth standard radio link.

When both parts are assembled, they may have a bidirectional connection through a pair of appropriate connectors 19, joining automatically to each other.

15 The second part 16 may provide a connector 20 for recharging its internal batteries and also the internal batteries of the first part 11 through the connectors 19.

As shown in Fig. 4, the second part 16 (also called "power transceiving part) can be equipped with a further interfacing connector 21 to a personal computer 22, to allow a direct digital data exchange with the cellular network (such as to use the second part 16 for a "modem" function). The first part 11, or "control and audio part", may  
20 advantageously comprise an interface 23, such as an infrared one, in particular IrDA, for data exchange with the personal computer, i.e. the telematic services station.

Fig. 3 shows a preferred embodiment of the apparatus according to the present invention.

In this preferred embodiment, the power part 16 comprises the transceiver section 24  
25 (GSM-DCS or other) mentioned above – which is no further described nor represented being a common one and easily conceivable by a man skilled in the art – and a connector 25 for a subscribersubscriber identifying module, such as SIM or UIM, to get access to the network. The part 16 may also comprise a buzzer 26, to be activated by the part 11 to facilitate its research should it get lost, and a vibration call indicator 27,  
30 which is useful to signal the subscriber about the arrival of a call when both parts are assembled forming one sole apparatus. In addition (or alternatively) also the part 11 can have its own vibration call indicator 28. This is useful whenever the power section, for

example, is located somewhere else (or placed in a case) and only the part 11 is kept in one's pocket.

Always with reference to Fig. 3, besides the already mentioned earphone 12, microphone 13, display 15 and keyboard 14, the part 11 may also comprise a connector for SmartCard 29, i.e. wherein a Smartcard can be housed for enabling access to telematic services, and a connector for Multimedia Card 30, i.e. a Flash data memory card or analogous.

Fig. 5 shows a communication system with telematic services supplied by telecommunication stations and/or networks, according to the present invention.

As it can be seen in this figure, several telephones according to the present invention (each one consisting of their respective parts 11,16) can carry on a dialog with the cellular network 31, to which also conventional cellular telephones can have access as well. In addition, the telephones according to the present invention may have their part 11 connected (as short distance) to a private station or network 32 through the interface 23 or other wireless communicating means. All units 11 or just the enabled units 11 may connect to this private station or network, e.g. through the SmartCard 29 or Multimedia Card 30.

For example, the station 32 may be installed in the house of the cellular telephone subscriber so as to have a private communication line between home and portable telephone, or be installed with companies wanting an internal communication system (with reserved access for company employees only) or a reserved communication system with customers, who can subscribe the service or obtain it as a "bonus". The latter utilization may be advantageous e.g. for banks.

From the above description the features of the present invention as well as the relevant advantages thereof are clear.

Through its separable control and audio part, the portable cellular telephone according to the present invention is advantageously apt to interact not only with the standard cellular network, but also with a further station or network through further wireless connecting means arranged on said control and audio part. Advantageously, the subscriber can utilize said control and audio part to have access also to other services differing from the cellular telephony network, such as company services, bank services or household network services. Moreover, availability of smartcards and multimedia

card connectors allow configuration of said control and audio part like a real true multiservice terminal.

The portable cellular telephone according to the present invention can be separated, whenever desired, in a power part to be placed at distance from the subscriber body, and a control and audio part with all subscriber interface functions usually available in a conventional cellular telephone, without any high power radio irradiations located near the subscriber's body.

The portable cellular telephone according to the present invention will advantageously use a radio transmission for connection between the two telephone parts, whose power is much lower than required for GSM transmission.

It is obvious that many changes are possible for the man skilled in the art to the portable cellular telephone and communication system with telematic services supplied by telecommunications stations and/or networks thereof described above by way of example, without departing from the novelty spirit of the innovative idea, and it is also clear that in practical actuation of the invention the components may often differ in form and size from the ones described and be replaced with technical equivalent elements.

For example, other functions and accessories may be provided, such as an FM radio, MP3 audio decoder functions, Voice Memo and Dialling, Wap Browser, etc.

The use of a standard radio link between the two parts will also allow connection of the control and audio module, other than connection with its own power part., to other equipment compatible with this standard. The power part 16 can also be used on its own as a GSM transceiving unit connected to a computer (advantageously a portable one) for practical data exchange through the network.

### CLAIMS

1. A portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first (11) and second part (16) being in bidirectional communication with each other when separated, characterized in that said first part comprises means for wireless communicating with a further station or network (22, 32).
2. A portable cellular telephone, according to claim 1, characterized in that the wireless bidirectional communication occurs by radio.
3. A portable cellular telephone, according to claim 2, characterized in that said first part (11) and second part (16) are assembled together releasable from each other.
4. A portable cellular telephone, according to claim 3, characterized in that when said parts are assembled, wireless bidirectional communication is replaced by a direct transmission through an electric connection that establishes upon mutual assembly of said first part (11) and said second part (16).
5. A portable cellular telephone, according to claim 4, characterized in that the second part (16) comprises a connector (22) for the reception and transmission of digital data through the cellular network (31).
6. A portable cellular telephone, according to claim 1, characterized in that the wireless communicating means of the first part (11) consist of an infrared connection (23).
7. A portable cellular telephone, according to claim 1, characterized in that said infrared connection (23) puts the first part (11) in communication with a computer (22).
8. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of a short distance connection with the station or network (32).
9. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of the standard radio link utilized for the bidirectional communication with the second part (16).



10. A portable cellular telephone, according to claim 1, characterized in that said first part (11) comprises a SmartCard connector (29) and or Multimedia Card connector (30).

11. A portable cellular telephone, according to claim 1, characterized in that said  
5 means for performing subscriber interface functions (12, 13, 14, 15) comprise a keyboard, a display and audio functions.

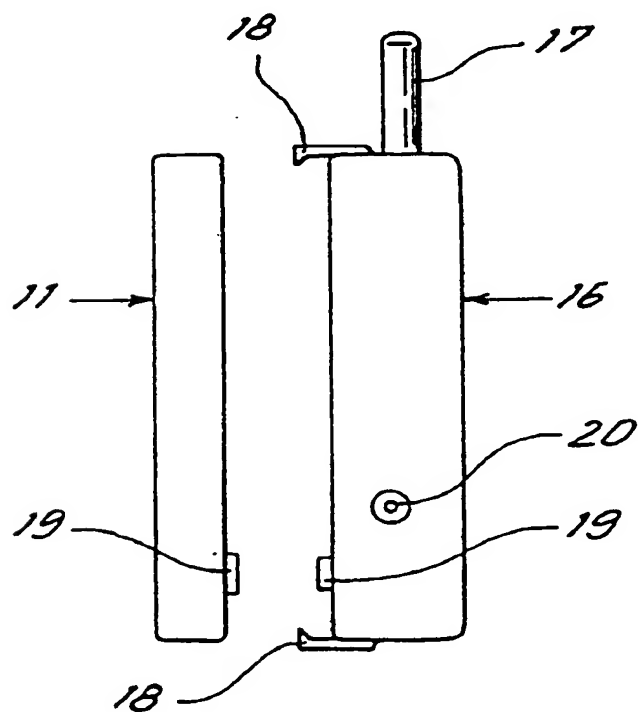
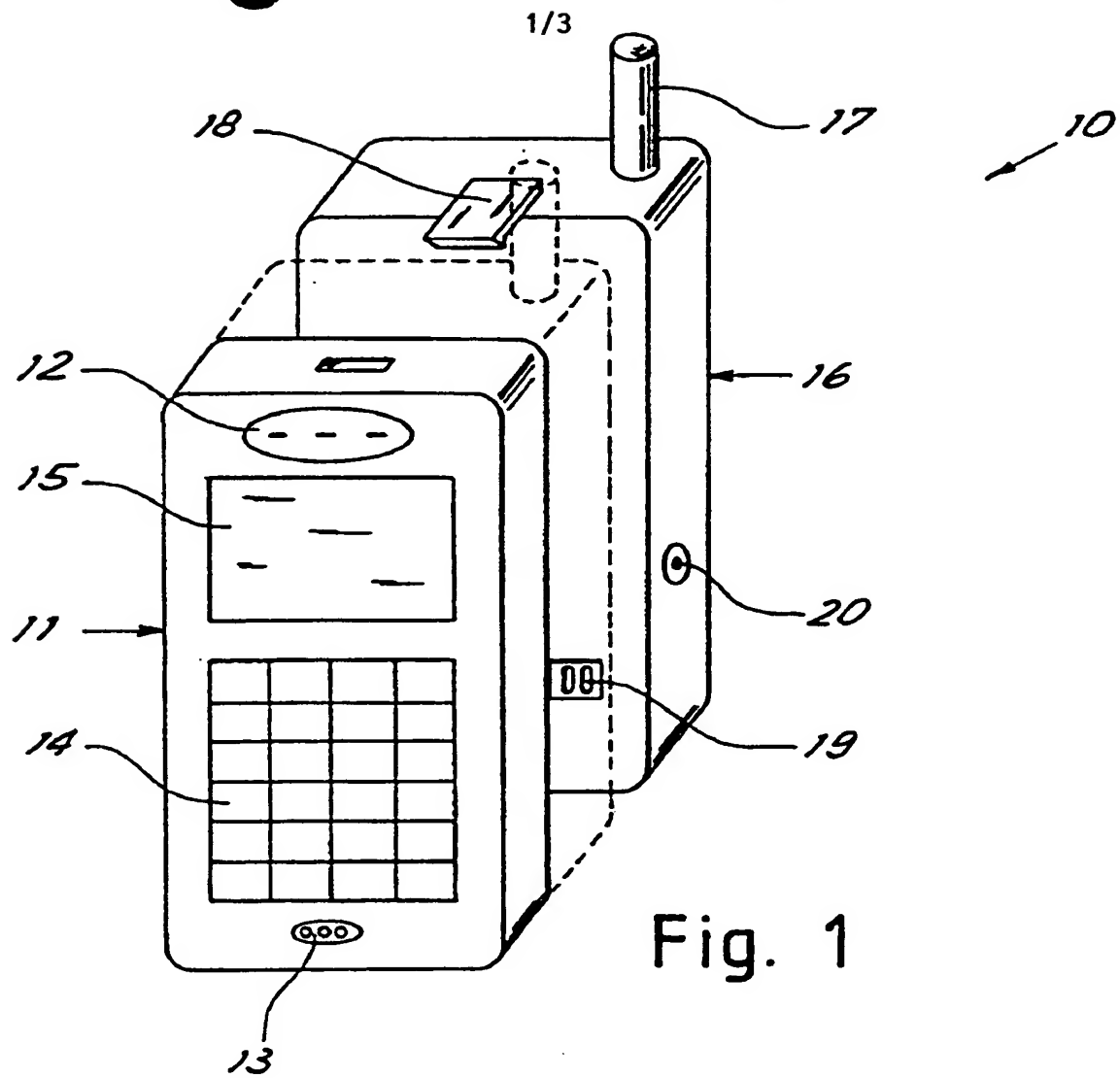
12. A portable cellular telephone, according to claim 1, characterized in that it comprises FM radio functions and/or MP3 audio decoder functions and/or Voice Memo and Dialling and/or Wap Browser functions.

10 13. A communication system with telematic services supplied by telecommunication stations and/or networks, which provides utilization of subscriber terminals for information exchange with said telecommunication stations or networks, characterized in that as a subscriber terminal it uses a portable cellular telephone comprising means for performing subscriber interface functions (12, 13, 14, 15), a transmitting and  
15 receiving section (17, 24) for a cellular telephone network (31), said means for performing subscriber interface functions (12, 13, 14, 15) being gathered together in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being in wireless  
20 bidirectional communication to each other when they are separated, and that said first part comprises wireless means (23) for communicating with a further station or network (22, 32), said system comprising at least one of the telecommunication stations or networks (32) apt to communicate directly and wireless with said wireless communicating means (23).

25 14. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 13, characterized in that the station or telecommunication network (22, 32) is a company internal communication station or network and/or a station or network for enabled customers.

15. A communication system with telematic services supplied by  
30 telecommunication stations and/or networks, according to claim 14, characterized in that said company internal telecommunication station or network and/or station or network for enabled customers is a bank services network.

16. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 13, characterized in that said telecommunication station or network (22,32) is an internal household communication station or network.



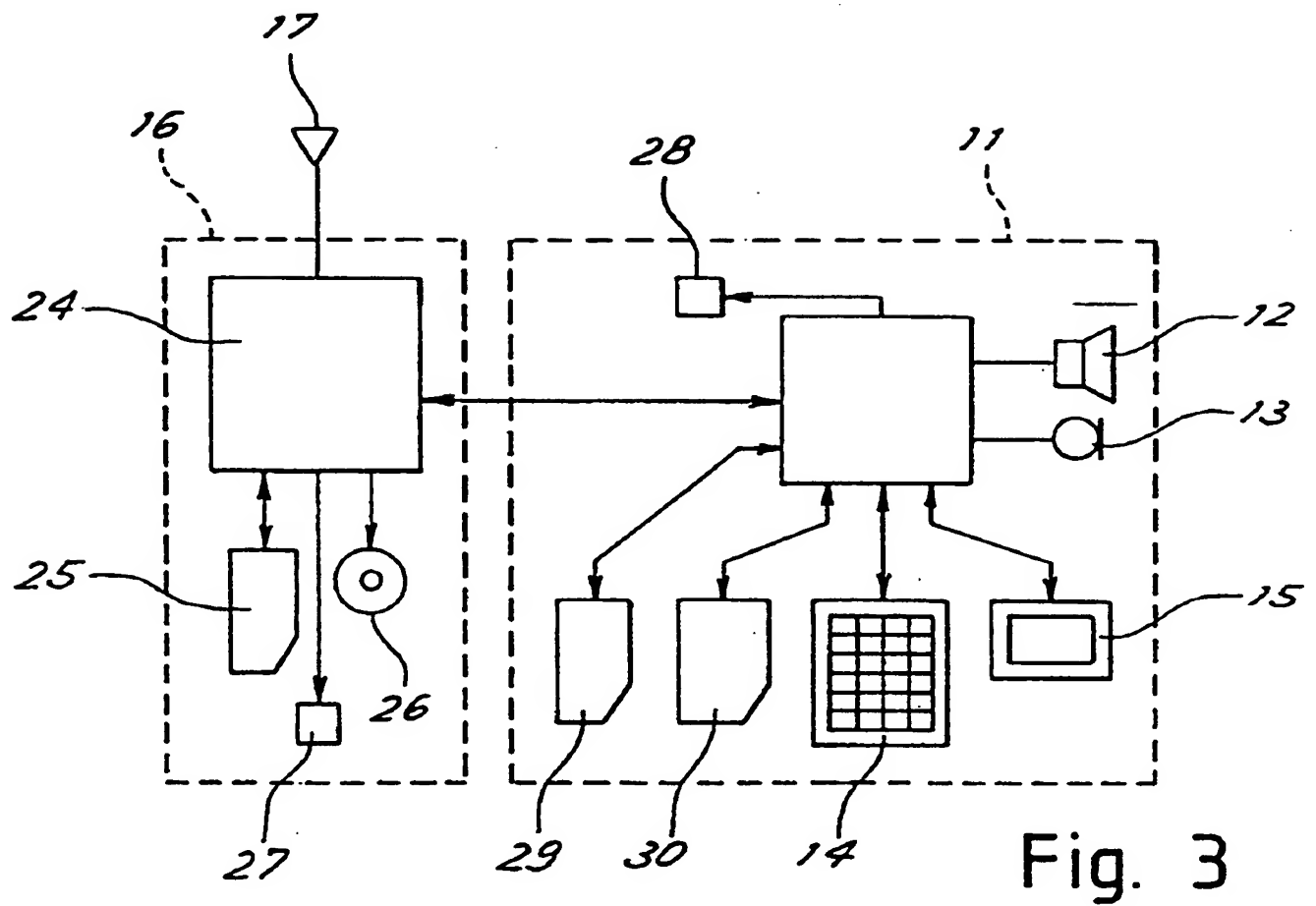


Fig. 3

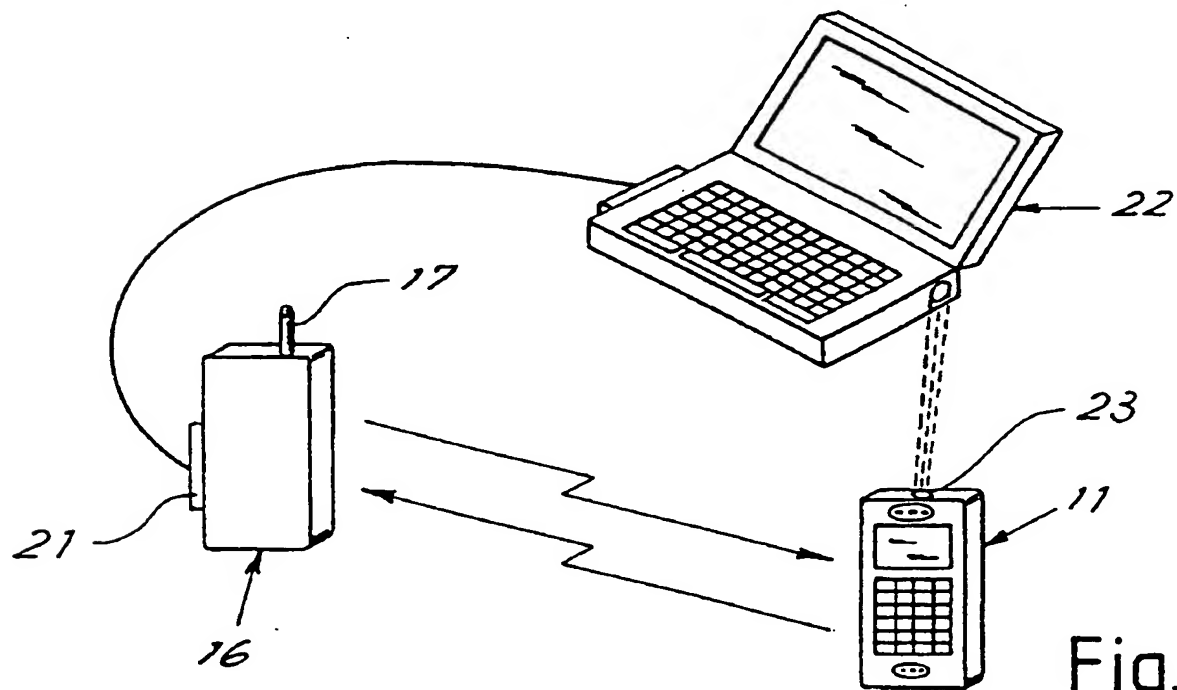


Fig. 4

3/3

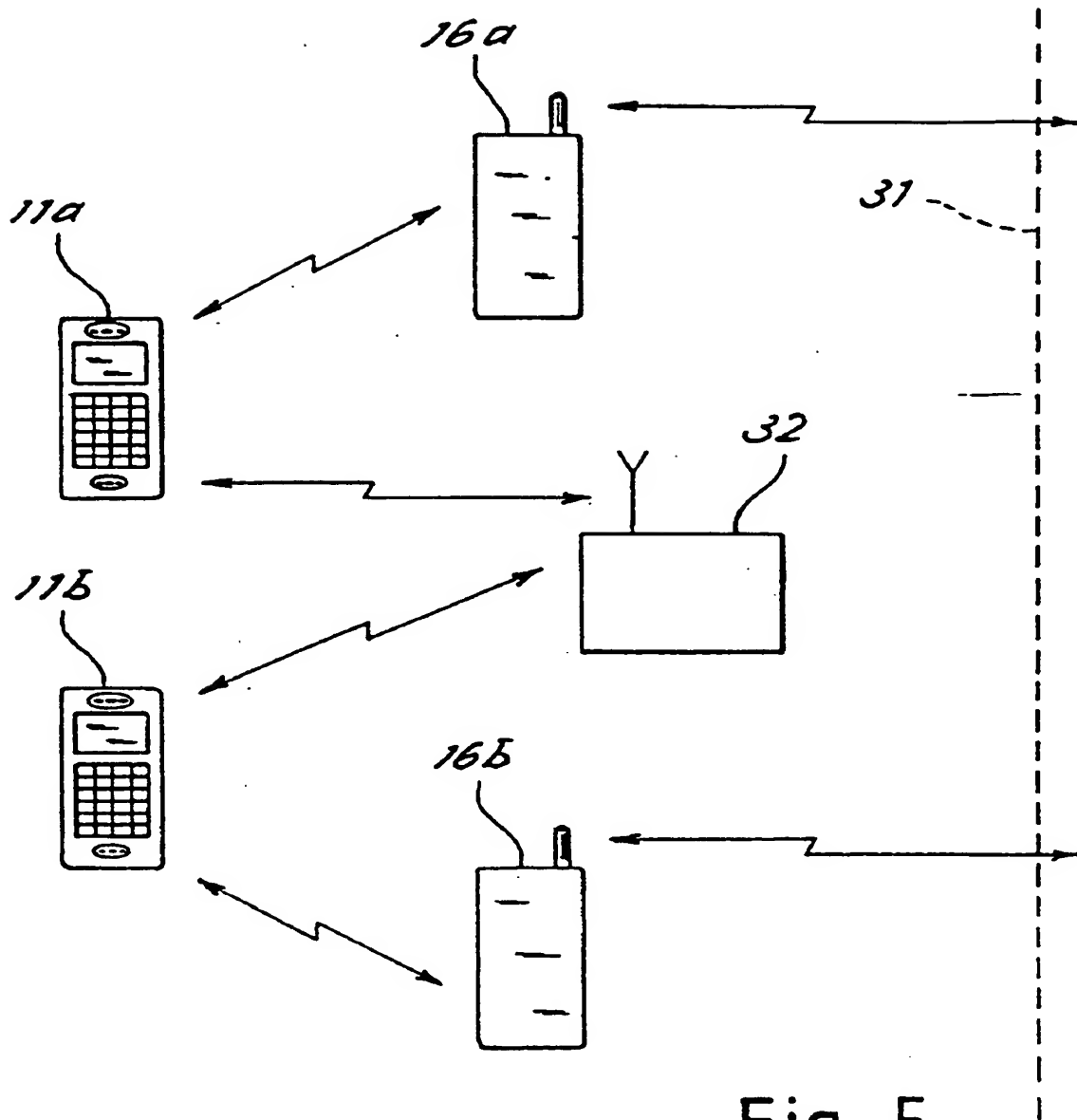


Fig. 5

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01320

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04M1/02 H04M1/725

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 781 018 A (NEDERLAND PTT) 25 June 1997 (1997-06-25) column 3, line 59 -column 5, line 29; figures 1-3	1-3,6
A	----	4,11,13
X	EP 0 840 465 A (NOKIA MOBILE PHONES LTD) 6 May 1998 (1998-05-06) column 13, line 15-26; figure 2 column 14, line 34 -column 15, line 23; figure 4 column 18, line 57 -column 19, line 33; figure 8	1,2,11
A	----	1-4
	DE 298 11 106 U (SARACENI RODOLFO) 3 December 1998 (1998-12-03) page 3, line 1-15 page 5, line 79-91; figures 1,4	
	----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

2 March 2001

Date of mailing of the international search report

09/03/2001

Name and mailing address of the ISA  
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Authorized officer

de Biolley, L

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01320

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 665 655 A (HEWLETT PACKARD CO) 2 August 1995 (1995-08-02) abstract	7
A	US 5 148 471 A (METROKA MICHAEL P ET AL) 15 September 1992 (1992-09-15) abstract	12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 00/01320

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0781018	A	25-06-1997	NL	1001967 C	24-06-1997
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			JP	10163917 A	19-06-1998
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			SG	52277 A	28-09-1998
			WO	9107835 A	30-05-1991



REC'D 07 JAN 2002

WIPO

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TEL002	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IB00/01320	International filing date (day/month/year) 19/09/2000	Priority date (day/month/year) 20/09/1999
International Patent Classification (IPC) or national classification and IPC H04M1/02		
Applicant TELIT MOBILE TERMINALS S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  18/04/2001	Date of completion of this report  03.01.2002
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Veaux, C  Telephone No. +49 89 2399 8820



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01320

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1,3-5	as originally filed	
2,2a	with telefax of	23/11/2001

### Claims, No.:

1-15	with telefax of	23/11/2001
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### Drawings, sheets:

1/3-3/3	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01320

- ☐ the description,      pages:
- ☐ the claims,      Nos.:
- ☐ the drawings,      sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-15
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-15
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-15
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB00/01320

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

The invention relates to a portable cellular telephone (independent claim 1) and to a communication system comprising said portable cellular telephone (claim 12).

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks or stations associated to telematic services, which telephone is apt to perform usual common terminal functions towards the cellular telephony network. According to the present invention, this cellular telephone can be separated in two sections, a first part concentrating the subscriber interface functions, said first section also comprising transceiving means towards further telecommunications networks or stations associated to distribution of telematic service whereas the second part of the cellular telephone concentrates the power functions associated to the cellular telephone network, which are potentially harmful for the subscriber.

Nearest available prior art document is D1=EP-A-781018 which discloses a mobile phone device in two parts, one part containing high frequency circuits and the other low frequency circuits. These two parts can communicate through wire, infrared or ultrasound connection, so that the high frequency part is capable of being placed at a location where the quality of the radio link is good, while the user can still move relatively freely holding the low frequency part.

According to the features of independent claim 1, the portable cellular telephone consists of two parts assembled together releasable from each other said parts being in bidirectional communication with each other when separated whereby the part comprising the means for performing subscriber interface functions further comprises means for wireless communicating with a further telecommunications network or with a telecommunication station.

None of the available prior art documents discloses or renders obvious the combination of features of independent claim 1, claim 1 thus fulfils the requirements of Article 33(2) and 33(3) PCT regarding novelty and inventive step

Claim 12 defines a corresponding communication system using the telephone of claim

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB00/01320

1 and thus also fulfils the requirements of Article 33(2) and 33(3) PCT regarding novelty and inventive step.

Claims 2 to 11 and 13 to 15 are dependent on claims 1 or 12 and therefore also fulfil the requirements of Article 33(2) and (3) PCT.

**VIII. Certain observations on the international application**

Claim 12 does not comply with the clarity requirement of Article 6 PCT for the following reason:

Although claim 12 attempts to define a system ("communication system"), the features of the claims actually relating to the invention appear to relate to method steps ("**provides utilization** of subscriber terminals... characterized in that the subscriber terminal comprises a portable cellular telephone...") which are inadequate for defining a system.

Considering that the inventive features of the claim actually relate to the portable cellular telephone itself and that all the features of claim 12 should relate clearly to apparatus features and impose clear restrictions on the system itself, claim 12 should have been reformulated in order to define a system which **comprises** the portable cellular telephone and not a *system which provides utilization of terminals comprising the portable cellular telephone*.

performance with respect to existing solutions.

In this frame, it is the main object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks allowing concentration of the terminals required for subscriber's interaction with the telematic services in one terminal alone, which is not harmful for the subscriber.

Europeant patent application EP-A-781018 discloses a mobile phone device in two parts, one part containing the high-frequency circuits and the other the low-frequency circuits.

These two parts can communicate through wire, infrared o ultrasound connection, so that the high-frequency part is capable of being placed at a location where the quality of the radio link is good, while the user can still move relatively freely holding the low-frequency part.

In order to achieve such aims, it is the object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the features of the annexed claims, which form an integral part of the description herein.

Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by way of non limiting example, wherein:

- Fig. 1 shows an exploded prospective view of a portable cellular telephone according to the present invention;
- Fig. 2 shows a side view of the telephone of Fig. 1;
- Fig. 3 shows a block diagram of the parts forming the telephone of Fig. 1;
- Fig. 4 shows a possible flow diagram of the portable cellular telephone according to the

present invention;

- Fig. 5 shows a communication system with telematic services supplied by telecommunications stations and/or networks according to the present invention.

The inventive idea lies in the use of a cellular telephone as a communication terminal with  
5 further telecommunications networks or stations associated to telematic services, which cellular telephone is apt to perform usual common terminal functions towards the cellular.

CLAIMS

1. A portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a telecommunications cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being assembled together releasable from each other, said first (11) and second part (16) being in bidirectional communication with each other when separated, characterized in that said first part comprises means for wireless communicating with a further telecommunications network or with a telecommunication station or network (22, 32).

2. A portable cellular telephone, according to claim 1, characterized in that the wireless bidirectional communication occurs by radio.

~~3. A portable cellular telephone, according to claim 2, characterized in that said first part (11) and second part (16) are assembled together releasable from each other.~~

4. 3. A portable cellular telephone, according to claim 23, characterized in that when said parts are assembled, wireless bidirectional communication is replaced by a direct transmission through an electric connection that establishes upon mutual assembly of said first part (11) and said second part (16).

5.4. A portable cellular telephone, according to claim 34, characterized in that the second part (16) comprises a connector (22) for the reception and transmission of digital data through the cellular network (31).

6.5. A portable cellular telephone, according to claim 1, characterized in that the



wireless communicating means of the first part (11) consist of an infrared connection (23).

7-6. A portable cellular telephone, according to claim 1, characterized in that said infrared connection (23) puts the first part (11) in communication with a computer (22).

8-7. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of a short distance connection with the station or network (32).

9-8. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of the standard radio link utilized for the bidirectional communication with the second part (16).

10-9. A portable cellular telephone, according to claim 1, characterized in that said first part (11) comprises a SmartCard connector (29) and or Multimedia Card connector (30).

11-10. A portable cellular telephone, according to claim 1, characterized in that said means for performing subscriber interface functions (12, 13, 14, 15) comprise a keyboard, a display and audio functions.

12-11. A portable cellular telephone, according to claim 1, characterized in that it comprises FM radio functions and/or MP3 audio decoder functions and/or Voice Memo and Dialling and/or Wap Browser functions.

13-12. A communication system with telematic services supplied by telecommunication stations and/or networks, which provides utilization of subscriber terminals for information exchange with said telecommunication stations or networks, characterized in that ~~as the~~ subscriber terminal ~~it uses~~ comprises a portable cellular telephone comprising means for performing subscriber interface functions (12, 13, 14, 15), a transmitting and receiving section (17, 24) for a cellular telephone network (31), ~~said means for performing subscriber~~

~~interface functions (12, 13, 14, 15) being gathered together in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being in wireless bidirectional communication to each other when they are separated, and that said first part comprises wireless means (23) for communicating with a further station or network (22, 32), as claimed in claim 1, said communications system comprising at least one of the telecommunication stations or networks (32) apt to communicate directly and wireless with said wireless communicating means (23).~~

14.13. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 123, characterized in that the station or telecommunication network (22, 32) is a company internal communication station or network and/or a station or network for enabled customers.

15.14. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 134, characterized in that said company internal telecommunication station or network and/or station or network for enabled customers is a bank services network.

16.15. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 123, characterized in that said telecommunication station or network (22,32) is an internal household communication station or network.

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>TEL002</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/IB00/01320</b>	International filing date ( <i>day/month/year</i> ) <b>19/09/2000</b>	Priority date ( <i>day/month/year</i> ) <b>20/09/1999</b>
International Patent Classification (IPC) or national classification and IPC <b>H04M1/02</b>		
Applicant <b>TELIT MOBILE TERMINALS S.P.A. et al.</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 5 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I    <input checked="" type="checkbox"/> Basis of the report</li> <li>II   <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V    <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>18/04/2001</b>	Date of completion of this report  <b>03.01.2002</b>	
Name and mailing address of the International preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office              D-80298 Munich              Tel. +49 89 2399 - 0 Tx: 523656 epmu d              Fax: +49 89 2399 - 4465           </div> </div>	Authorized officer  <b>Veaux, C</b>  Telephone No. +49 89 2399 8820	



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/01320

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

1,3-5	as originally filed	
2,2a	with telefax of	23/11/2001

### Claims, No.:

1-15	with telefax of	23/11/2001
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### Drawings, sheets:

1/3-3/3	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/IB00/01320

- ☐ the description,      pages:  
☐ the claims,          Nos.:  
☐ the drawings,        sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims 1-15
	No: Claims
Inventive step (IS)	Yes: Claims 1-15
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-15
	No: Claims

- 2. Citations and explanations**  
**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

---

International application No. PCT/IB00/01320

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

The invention relates to a portable cellular telephone (independent claim 1) and to a communication system comprising said portable cellular telephone (claim 12).

The inventive idea lies in the use of a cellular telephone as a communication terminal with further telecommunications networks or stations associated to telematic services, which telephone is apt to perform usual common terminal functions towards the cellular telephony network. According to the present invention, this cellular telephone can be separated in two sections, a first part concentrating the subscriber interface functions, said first section also comprising transceiving means towards further telecommunications networks or stations associated to distribution of telematic service whereas the second part of the cellular telephone concentrates the power functions associated to the cellular telephone network, which are potentially harmful for the subscriber.

Nearest available prior art document is D1=EP-A-781018 which discloses a mobile phone device in two parts, one part containing high frequency circuits and the other low frequency circuits. These two parts can communicate through wire, infrared or ultrasound connection, so that the high frequency part is capable of being placed at a location where the quality of the radio link is good, while the user can still move relatively freely holding the low frequency part.

According to the features of independent claim 1, the portable cellular telephone consists of two parts assembled together releasable from each other said parts being in bidirectional communication with each other when separated whereby the part comprising the means for performing subscriber interface functions further comprises means for wireless communicating with a further telecommunications network or with a telecommunication station.

None of the available prior art documents discloses or renders obvious the combination of features of independent claim 1, claim 1 thus fulfils the requirements of Article 33(2) and 33(3) PCT regarding novelty and inventive step

Claim 12 defines a corresponding communication system using the telephone of claim

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/IB00/01320

1 and thus also fulfils the requirements of Article 33(2) and 33(3) PCT regarding novelty and inventive step.

Claims 2 to 11 and 13 to 15 are dependent on claims 1 or 12 and therefore also fulfil the requirements of Article 33(2) and (3) PCT.

**VIII. Certain observations on the international application**

Claim 12 does not comply with the clarity requirement of Article 6 PCT for the following reason:

Although claim 12 attempts to define a system ("communication system"), the features of the claims actually relating to the invention appear to relate to method steps ("**provides utilization** of subscriber terminals... characterized in that the subscriber terminal comprises a portable cellular telephone...") which are inadequate for defining a system.

Considering that the inventive features of the claim actually relate to the portable cellular telephone itself and that all the features of claim 12 should relate clearly to apparatus features and impose clear restrictions on the system itself, claim 12 should have been reformulated in order to define a system which **comprises** the portable cellular telephone and not *a system which provides utilization of terminals comprising the portable cellular telephone.*

performance with respect to existing solutions.

In this frame, it is the main object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks allowing concentration of the terminals required for subscriber's interaction with the telematic services in one terminal alone, which is not harmful for the subscriber.

Europeant patent application EP-A-781018 discloses a mobile phone device in two parts, one part containing the high-frequency circuits and the other the low-frequency circuits.

These two parts can communicate through wire, infrared o ultrasound connection, so that the high-frequency part is capable of being placed at a location where the quality of the radio link is good, while the user can still move relatively freely holding the low-frequency part.

In order to achieve such aims, it is the object of the present invention to provide a portable cellular telephone and relevant communication system with telematic services supplied by telecommunications stations and/or networks, incorporating the features of the annexed claims, which form an integral part of the description herein.

Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by way of non limiting example, wherein:

- 20 - Fig. 1 shows an exploded prospective view of a portable cellular telephone according to the present invention;
- Fig. 2 shows a side view of the telephone of Fig. 1;
- Fig. 3 shows a block diagram of the parts forming the telephone of Fig. 1;
- Fig. 4 shows a possible flow diagram of the portable cellular telephone according to the



present invention;

- Fig. 5 shows a communication system with telematic services supplied by telecommunications stations and/or networks according to the present invention.

The inventive idea lies in the use of a cellular telephone as a communication terminal with  
5 further telecommunications networks or stations associated to telematic services, which  
cellular telephone is apt to perform usual common terminal functions towards the cellular.

### CLAIMS

1. A portable cellular telephone, comprising means for performing subscriber interface functions (12, 13, 14, 15) and a transmitting and receiving section (17, 24) for a telecommunications cellular telephone network (31), the means for performing subscriber interface functions (12, 13, 14, 15) being gathered in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being assembled together releasable from each other, said first (11) and second part (16) being in bidirectional communication with each other when separated, characterized in that said first part comprises means for wireless communicating with a further telecommunications network or with a telecommunication station or network (22, 32).

2. A portable cellular telephone, according to claim 1, characterized in that the wireless bidirectional communication occurs by radio.

~~3. A portable cellular telephone, according to claim 2, characterized in that said first part (11) and second part (16) are assembled together releasable from each other.~~

~~4.3. A portable cellular telephone, according to claim 23, characterized in that when said parts are assembled, wireless bidirectional communication is replaced by a direct transmission through an electric connection that establishes upon mutual assembly of said first part (11) and said second part (16).~~

~~5.4. A portable cellular telephone, according to claim 34, characterized in that the second part (16) comprises a connector (22) for the reception and transmission of digital data through the cellular network (31).~~

~~6.5. A portable cellular telephone, according to claim 1, characterized in that the~~

wireless communicating means of the first part (11) consist of an infrared connection (23).

7-6. A portable cellular telephone, according to claim 1, characterized in that said infrared connection (23) puts the first part (11) in communication with a computer (22).

8-7. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of a short distance connection with the station or network (32).

9-8. A portable cellular telephone, according to claim 1, characterized in that said wireless communicating means of the first part (11) consist of the standard radio link utilized for the bidirectional communication with the second part (16).

10-9. A portable cellular telephone, according to claim 1, characterized in that said first part (11) comprises a SmartCard connector (29) and or Multimedia Card connector (30).

11-10. A portable cellular telephone, according to claim 1, characterized in that said means for performing subscriber interface functions (12, 13, 14, 15) comprise a keyboard, a display and audio functions.

12-11. A portable cellular telephone, according to claim 1, characterized in that it comprises FM radio functions and/or MP3 audio decoder functions and/or Voice Memo and Dialling and/or Wap Browser functions.

13-12. A communication system with telematic services supplied by telecommunication stations and/or networks, which provides utilization of subscriber terminals for information exchange with said telecommunication stations or networks, characterized in that as the subscriber terminal it ~~uses~~ comprises a portable cellular telephone comprising means for performing subscriber interface functions (12, 13, 14, 15), a transmitting and receiving section (17, 24) for a cellular telephone network (31), said means for performing subscriber

~~interface functions (12, 13, 14, 15) being gathered together in a first part (11) of said portable cellular telephone, whereas the transmitting and receiving section (17, 24) for a cellular telephone network (31) is in a second part (16) of said portable cellular telephone, said first part (11) and second part (16) being in wireless bidirectional communication to each other when they are separated, and that said first part comprises wireless means (23) for communicating with a further station or network (22, 32), as claimed in claim 1, said communications system comprising at least one of the telecommunication stations or networks (32) apt to communicate directly and wireless with said wireless communicating means (23).~~

14.13. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 123, characterized in that the station or telecommunication network (22, 32) is a company internal communication station or network and/or a station or network for enabled customers.

15.14. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 134, characterized in that said company internal telecommunication station or network and/or station or network for enabled customers is a bank services network.

16.15. A communication system with telematic services supplied by telecommunication stations and/or networks, according to claim 123, characterized in that said telecommunication station or network (22,32) is an internal household communication station or network.

# INTERNATIONAL SEARCH REPORT

Inte. onal Application No  
PCT/IB 00/01320

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04M1/02 H04M1/725

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 781 018 A (NEDERLAND PTT) 25 June 1997 (1997-06-25) column 3, line 59 -column 5, line 29; figures 1-3	1-3,6
A		4,11,13
X	EP 0 840 465 A (NOKIA MOBILE PHONES LTD) 6 May 1998 (1998-05-06) column 13, line 15-26; figure 2 column 14, line 34 -column 15, line 23; figure 4 column 18, line 57 -column 19, line 33; figure 8	1,2,11
A	DE 298 11 106 U (SARACENI RODOLFO) 3 December 1998 (1998-12-03) page 3, line 1-15 page 5, line 79-91; figures 1,4	1-4
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*A\* document member of the same patent family

Date of the actual completion of the international search

2 March 2001

Date of mailing of the international search report

09/03/2001

Name and mailing address of the ISA

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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

de Biolley, L

# INTERNATIONAL SEARCH REPORT

Inte. .onal Application No  
PCT/IB 00/01320

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 665 655 A (HEWLETT PACKARD CO) 2 August 1995 (1995-08-02) abstract	7
A	US 5 148 471 A (METROKA MICHAEL P ET AL) 15 September 1992 (1992-09-15) abstract	12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte. onal Application No

PCT/IB 00/01320

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0781018	A	25-06-1997	NL 1001967 C	24-06-1997
EP 0840465	A	06-05-1998	FI 964399 A	15-06-1998
			JP 10163917 A	19-06-1998
DE 29811106	U	03-12-1998	DE 19726545 A	24-12-1998
			EP 0887984 A	30-12-1998
EP 0665655	A	02-08-1995	US 5446783 A	29-08-1995
			JP 7226807 A	22-08-1995
			SG 66219 A	20-07-1999
US 5148471	A	15-09-1992	AT 167345 T	15-06-1998
			AU 626475 B	30-07-1992
			AU 6647390 A	13-06-1991
			CA 2045399 A,C	21-05-1991
			CN 1052016 A,B	05-06-1991
			DE 69032401 D	16-07-1998
			DE 69032401 T	03-12-1998
			DK 454814 T	29-03-1999
			EP 0454814 A	06-11-1991
			ES 2116985 T	01-08-1998
			SG 52277 A	28-09-1998
			WO 9107835 A	30-05-1991

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>TEL002</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IB 00/ 01320</b>	International filing date (day/month/year) <b>19/09/2000</b>	(Earliest) Priority Date (day/month/year) <b>20/09/1999</b>
Applicant <b>TELIT MOBILE TERMINALS S.P.A. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

1

☐ None of the figures.



## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01320

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04M1/02 H04M1/725

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 781 018 A (NEDERLAND PTT) 25 June 1997 (1997-06-25) column 3, line 59 -column 5, line 29; figures 1-3	1-3,6
A	---	4,11,13
X	EP 0 840 465 A (NOKIA MOBILE PHONES LTD) 6 May 1998 (1998-05-06) column 13, line 15-26; figure 2 column 14, line 34 -column 15, line 23; figure 4 column 18, line 57 -column 19, line 33; figure 8	1,2,11
A	DE 298 11 106 U (SARACENI RODOLFO) 3 December 1998 (1998-12-03) page 3, line 1-15 page 5, line 79-91; figures 1,4 ---	1-4
	--- -/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date, but later than the priority date claimed

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Date of the actual completion of the international search

2 March 2001

Date of mailing of the international search report

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01320

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 665 655 A (HEWLETT PACKARD CO) 2 August 1995 (1995-08-02) abstract ---	7
A	US 5 148 471 A (METROKA MICHAEL P ET AL) 15 September 1992 (1992-09-15) abstract -----	12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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			WO 9107835 A	30-05-1991

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## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

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INTERNATIONAL BUREAU OF WIPO PCT International Application	
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Applicant's or agent's file reference (if desired) (12 characters maximum) TEL002	

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PORTABLE CELLULAR TERMINAL AND COMMUNICATION SYSTEM THEREOF	
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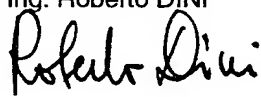
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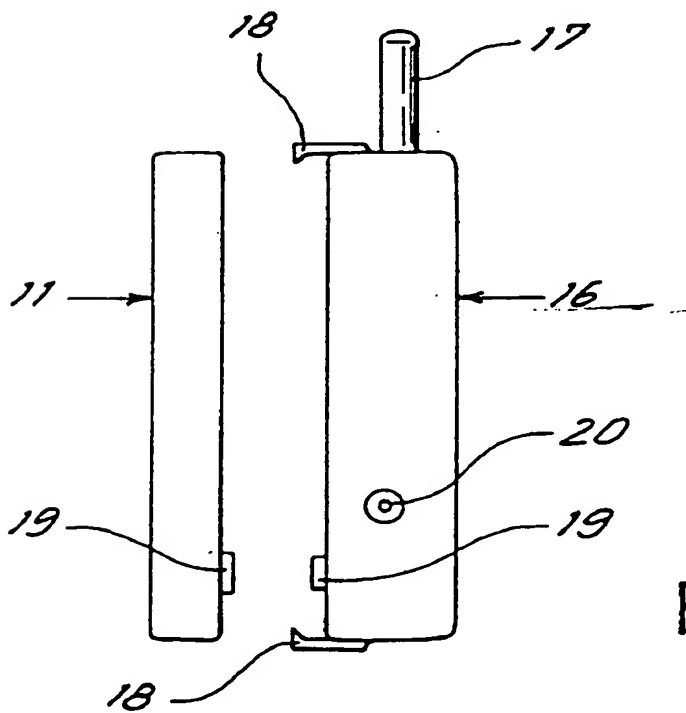
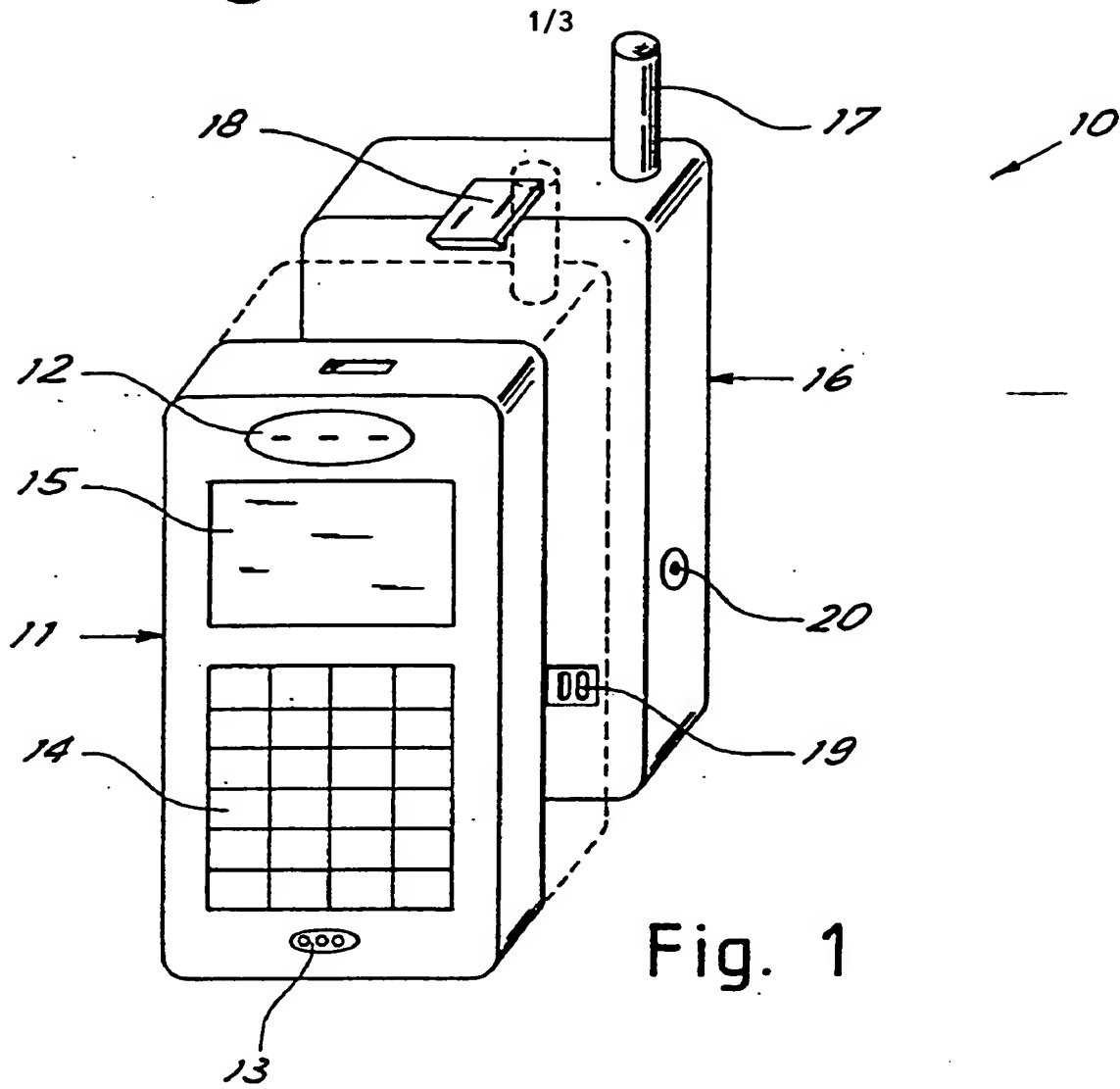
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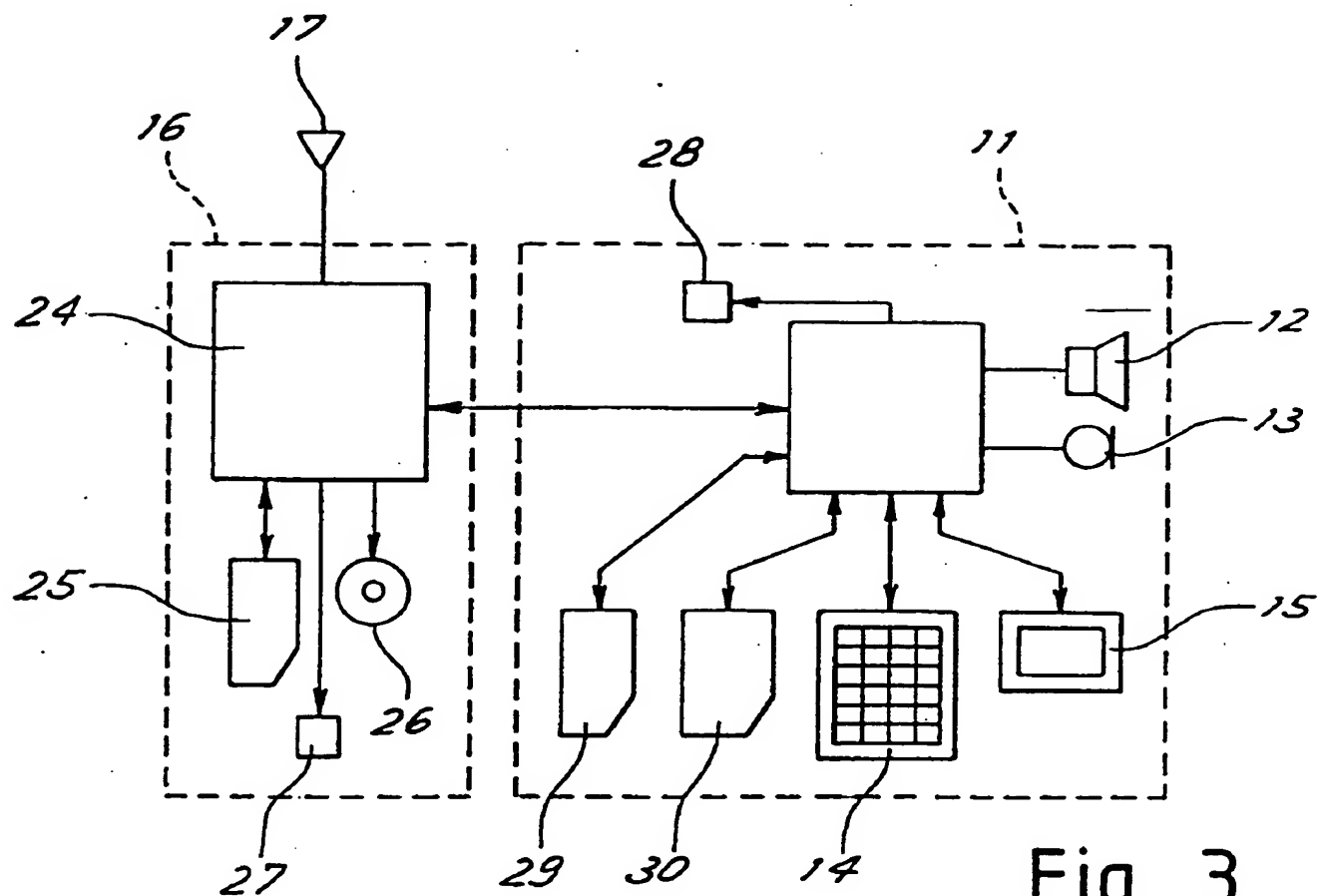


Fig. 3

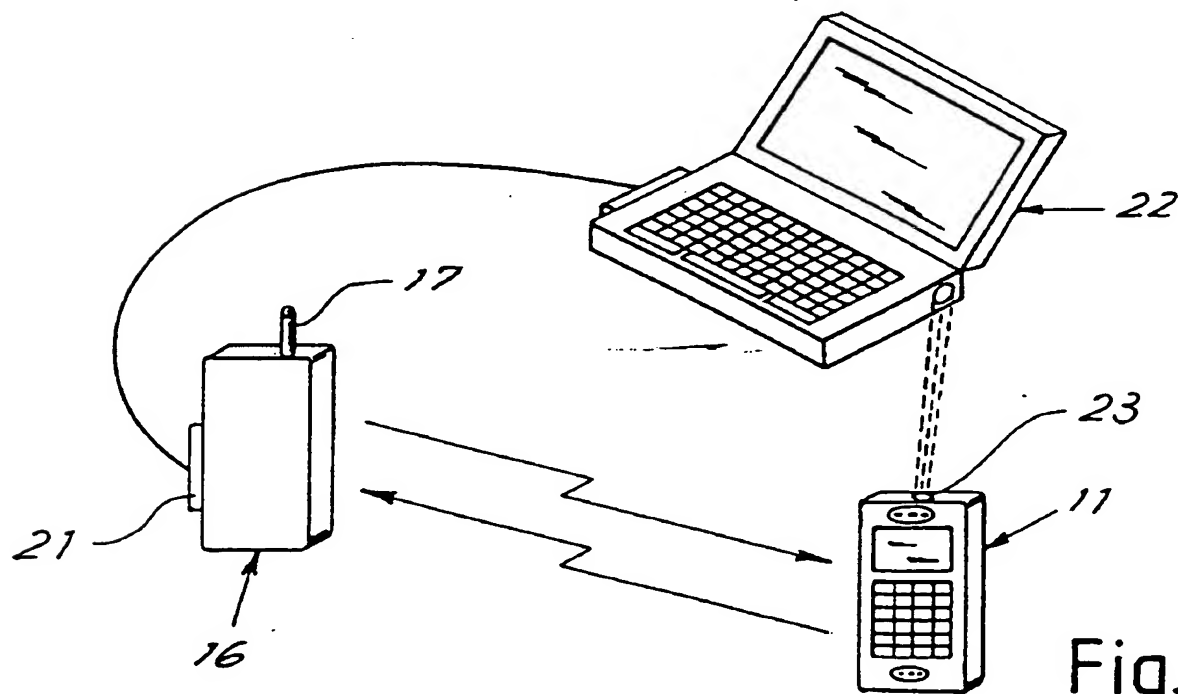


Fig. 4



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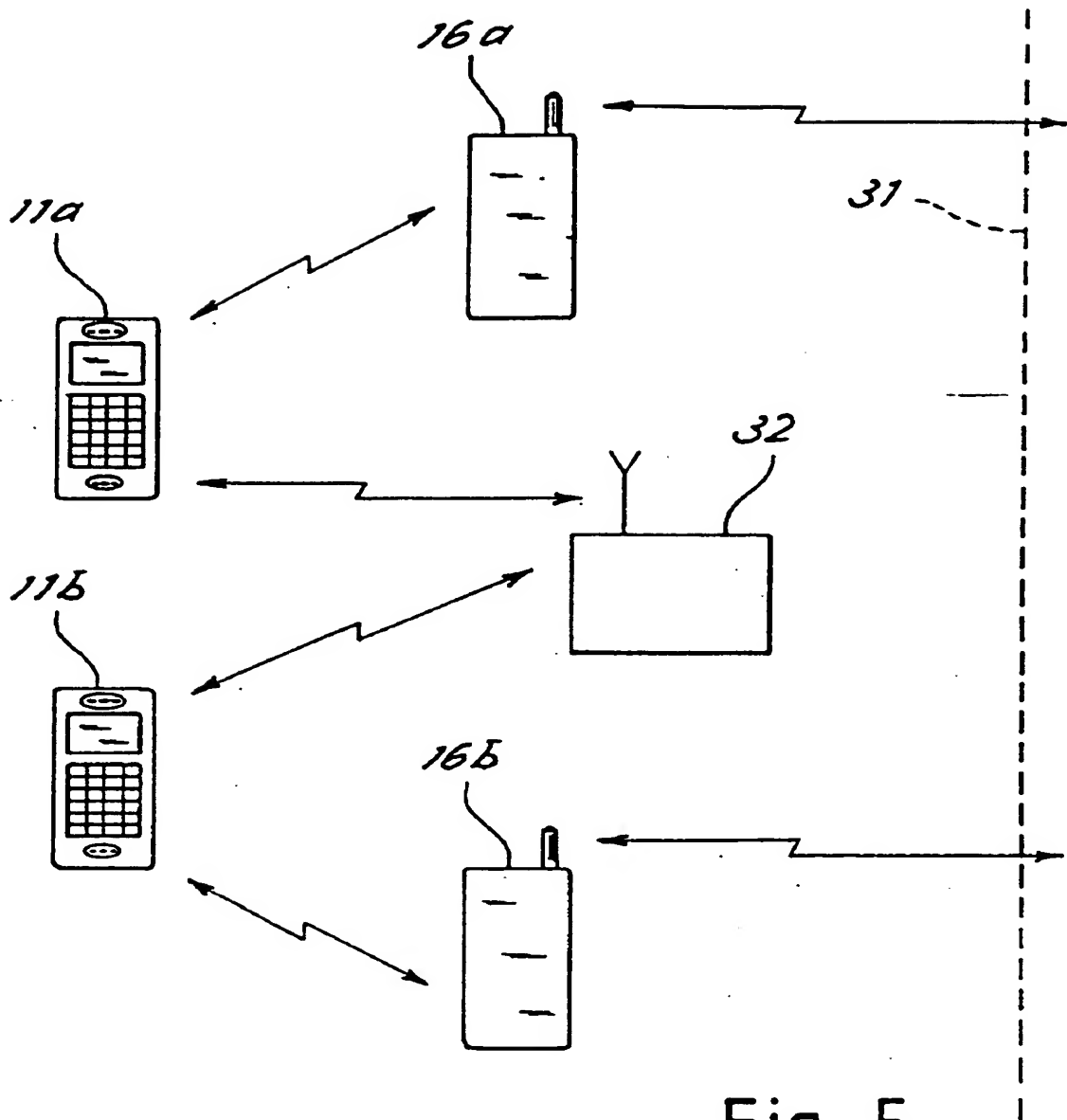


Fig. 5

## TELEFONO CELLULARE PORTATILE E RELATIVO SISTEMA DI COMUNICAZIONE

### DESCRIZIONE

La presente invenzione si riferisce ad un telefono cellulare portatile e relativo sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni.

In tempi recenti le reti di telecomunicazioni hanno avuto uno sviluppo estremamente rapido, diffondendosi in ogni livello della società e rendendo disponibili all'utente un gran numero di servizi accessibili in maniera remota, tramite appositi terminali.

5 Detti servizi telematici spaziano dalla connettività con la rete Internet a interazioni con altri tipi di reti, le quali possono essere contraddistinte da una copertura geografica ampia, come ad esempio una rete di telefonia cellulare, oppure possono avere una diffusione locale, come una rete aziendale, o al limite essere delle semplici stazioni di erogazione di detti servizi, come ad esempio un computer. Appartengono a detta gamma di servizi telematici anche i servizi accessibili usando apposite smartcard in congiunzione ai terminali.

10 L'utente si trova perciò nella necessità di disporre di una molteplicità di terminali, che permettano l'interazione con detti servizi telematici, con i conseguenti evidenti problemi di ingombro e di gestione che ne derivano,

Inoltre alcuni di detti terminali, in particolari quelli che fanno uso di radiotrasmissioni, come i telefoni cellulari, espongono il corpo dell'utente a radio emissioni a distanza molto  
15 ravvicinata. E' evidente perciò come tali esposizioni siano dannose per l'utente, e la moltiplicazione dei terminali a contatto dell'utente, che determinano tali radio emissioni dannose, sia estremamente perniciosa.

La presente invenzione si propone di risolvere gli inconvenienti sopra citati e di indicare un telefono cellulare portatile e relativo sistema di comunicazione con servizi telematici erogati  
20 da stazioni e/o reti di telecomunicazioni di realizzazione migliorata e più efficiente rispetto alle soluzioni note.

In tale ambito, scopo principale della presente invenzione è quello di indicare un telefono

cellulare portatile e relativo sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni, che permetta di concentrare i terminali necessari per l'interazione dell'utente con i servizi telematici in un unico terminale, che non sia dannoso per l'utente.

- 5 Per raggiungere tali scopi, formano oggetto della presente invenzione un telefono cellulare portatile e relativo sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni incorporanti le caratteristiche delle rivendicazioni allegate che fanno parte integrante della presente descrizione.

10 Ulteriori scopi, caratteristiche e vantaggi della presente invenzione risulteranno chiari dalla descrizione particolareggiata che segue e dai disegni annessi, forniti a puro titolo di esempio esplicativo e non limitativo, in cui:

- la figura 1 rappresenta una vista prospettica esplosa di un telefono cellulare portatile secondo l'invenzione;
- la figura 2 rappresenta una vista laterale del telefono di figura 1;
- 15 - la figura 3 rappresenta uno schema a blocchi delle parti componenti il telefono di figura 1;
- la figura 4 rappresenta un possibile schema di utilizzo del telefono cellulare portatile secondo l'invenzione;
- la figura 5 rappresenta un sistema di comunicazione con servizi telematici erogati da
- 20 stazioni e/o reti di telecomunicazioni secondo l'invenzione.

L'idea inventiva consiste nell'impiego come terminale di comunicazione con ulteriori reti di telecomunicazioni o stazioni associate a servizi telematici, di un telefono cellulare, il quale di per sé è atto a espletare le normali funzioni note di terminale verso la rete di telefonia cellulare. Secondo l'invenzione, detto telefono cellulare è scomponibile in due parti, la prima

25 parte concentrando le funzioni di interfaccia utente, detta prima parte comprendendo anche dei mezzi di ricetrasmisione verso ulteriori reti di telecomunicazioni o stazioni associate all'erogazione di servizi telematici, mentre la seconda parte del telefono cellulare concentra le funzioni di potenza relative alla rete di telefonia cellulare, potenzialmente dannose per

l'utente.

In figura 1 è dunque mostrato un apparecchio portatile per la telefonia cellulare, indicato genericamente con 10, il quale è composto da una prima parte 11, comprendente la sezione audio del telefono, con auricolare 12 e microfono 13, una tastiera 14 e un visualizzatore LCD 15, cioè le funzioni di interfaccia utente, e da una seconda parte 16 contenente tutta la sezione radio di potenza per la ricezione e la trasmissione da e per la rete cellulare. A tale scopo, la seconda parte comprende una opportuna antenna 17 e un ricetrasmittitore dual band GSM DCS. Per semplicità, si farà riferimento al sistema GSM, ma qualsiasi altro standard, sia già oggi applicato, sia da applicare in futuro (ad esempio lo standard UMTS) può essere impiegato. L'antenna potrebbe essere di tipo "stubby" o "patch".

Prima e seconda parte sono fra loro assemblabili in modo rilasciabile per mezzo di agganci esemplificativamente indicati con 18. Quando disassemblate, la prima e la seconda parte comunicano fra loro per mezzo di un collegamento bidirezionale senza fili.

Tale collegamento può essere vantaggiosamente realizzato via radio a bassa potenza, ad esempio a frequenza di 2.4GHz con antenne interne, ad esempio ricavate direttamente nei circuiti stampati dell'apparecchio. La connessione potrà essere realizzata con protocollo qualsivoglia, preferibilmente criptato, realizzando ad esempio un radio link in standard Bluetooth.

Quando assemblate le due parti possono invece avere una connessione bidirezionale attraverso una coppia di opportuni connettori 19, che si innestano automaticamente uno all'altro.

La seconda parte 16 può prevedere un connettore 20 per la ricarica delle proprie batterie interne e, attraverso i connettori 19, delle batterie interne della prima parte 11.

Come mostrato in figura 4, la seconda parte 16 (detta anche "parte di ricetrasmmissione di potenza") può essere dotata di un ulteriore connettore 21 di interfacciamento con un personal computer 22, per permettere uno scambio diretto di dati digitali con la rete cellulare (ad esempio per utilizzare la seconda parte 16 per una funzione "modem"). La

prima parte 11, o "parte di comando e audio", può vantaggiosamente comprendere una interfaccia 23 ad esempio a infrarossi, in particolare IrDA, per lo scambio di dati con il personal computer, cioè la stazione di servizi telematici.

In figura 3 è mostrata una struttura preferita dell'apparecchio secondo l'invenzione.

- 5 In tale realizzazione preferita, la parte di potenza 16 comprende la già menzionata sezione 24 di ricetrasmisione (GSM-DCS o altro) - non ulteriormente descritta o mostrata, essendo in sé nota e facilmente immaginabile dal tecnico esperto - e un connettore 25 per un modulo identificativo di utente, ad esempio SIM o UIM, per accesso alla rete. La parte 16 può comprendere anche un buzzer 26, attivabile dalla parte 11 per facilitarne la ricerca in caso di
- 10 smarrimenti, e un avvisatore di chiamata a vibrazione 27, utile per segnalare all'utente l'arrivo di una chiamata quando le due parti sono assemblate a formare un unico apparecchio. In aggiunta (o in alternativa) anche la parte 11 può essere dotata di un proprio avvisatore di chiamata a vibrazione 28. Ciò è utile quando, ad esempio, la parte di potenza viene appoggiata da qualche parte (o riposta in una valigetta) e si tiene in tasca la sola parte
- 15 11.

Sempre con riferimento alla figura 3, la parte 11 può comprendere, oltre ai già menzionati auricolare 12, microfono 13, visualizzatore 15, tastiera 14, anche un connettore per SmartCard 29, nel quale cioè può essere alloggiata una Smartcard per abilitare all'accesso di servizi telematici, e un connettore per Multimedia Card 30, cioè una carta di memoria

20 Flash o similare per dati.

In figura 5 è mostrato un sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni secondo l'invenzione.

Come si vede in tale figura, più telefoni secondo l'invenzione (formati ciascuno da rispettive parti 11,16) possono colloquiare con la rete cellulare 31, alla quale accedono anche i

25 tradizionali telefoni cellulari. In aggiunta, i telefoni secondo l'invenzione possono avere la parte 11 che si collega (a breve raggio), tramite l'interfaccia 23 o altri mezzi di comunicazione senza fili, ad una stazione o rete privata 32. A tale stazione o rete privata 32

possono collegarsi tutte le unità 11 o solo unità 11 abilitate, tramite la Smartcard 29 o la Multimedia Card 30 ad esempio.

Ad esempio, la stazione 32 può essere disposta in casa dell'utilizzatore del telefono cellulare, per avere una linea di comunicazione privata fra casa ed apparecchio portatile, oppure può essere disposta in aziende che desiderano dotarsi di un sistema di comunicazione interna (riservandone l'accesso ai soli dipendenti) o di un sistema di comunicazione privilegiato con i clienti, che possono sottoscrivere il servizio o riceverlo come "bonus". Quest'ultimo utilizzo può essere ad esempio vantaggioso per le banche.

Dalla descrizione effettuata risultano pertanto chiare le caratteristiche della presente invenzione, così come chiari risultano i suoi vantaggi.

Il telefono cellulare portatile secondo l'invenzione è vantaggiosamente atto a interagire con la sua parte separabile di comando e audio, non solo con la normale rete cellulare, ma con un'ulteriore stazione o rete, tramite ulteriori mezzi di collegamento senza fili che sono disposti su detto parte di comando e audio. L'utente vantaggiosamente perciò può utilizzare detta parte di comando e audio per accedere anche a servizi diversi dalla rete di telefonia cellulare, come servizi aziendali, bancari o della rete domestica. La presenza di connettori per smartcard e multimedia card permette inoltre a detta parte di comando e audio di configurarsi come un vero e proprio terminale multiservizi.

Il telefono cellulare portatile secondo l'invenzione può separarsi, quando desiderato, in una parte di potenza che si può disporre lontano dal corpo, e una parte di comando e audio, con tutte le funzioni di interfaccia verso l'utente che sono disponibili in un tradizionale telefono cellulare, senza avere irraggiamenti radio ad alta potenza in prossimità del corpo dell'utilizzatore.

Il telefono cellulare portatile secondo l'invenzione utilizza vantaggiosamente una trasmissione radio per la connessione fra le due parti componenti il telefono, che è di potenza molto minore di quella necessaria per la trasmissione GSM.

E' chiaro che numerose varianti sono possibili per l'uomo del ramo al telefono cellulare portatile e relativo sistema di comunicazione con servizi telematici erogati da stazioni e/o

reti di telecomunicazioni descritti come esempio, senza per questo uscire dai principi di novità insiti nell'idea inventiva, così come è chiaro che nella sua pratica attuazione le forme dei dettagli illustrati potranno essere diverse, e gli stessi potranno essere sostituiti con degli elementi tecnicamente equivalenti.

- 5 Ad esempio altre funzioni ed accessori possono essere previsti, quali la presenza di una radio FM, funzioni di audio decoder MP3, Voice Memo e Dialling, Wap Browser, ecc.

L'uso di un radio link standard fra le due parti permette anche la connessione del modulo di comando e audio ad altre apparecchiature compatibili con tale standard oltre che con la propria parte di potenza.

- 10 La parte di potenza 16 può anche essere usata da sola come unità di ricetrasmissione GSM connessa ad un computer (vantaggiosamente portatile) per un pratico scambio di dati attraverso la rete.

**RIVENDICAZIONI**

1. Telefono cellulare portatile del tipo comprendente mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15), una sezione di trasmissione e ricezione (17, 24) per una rete telefonica cellulare (31), i mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15) essendo raggruppati in una prima parte (11) di detto telefono cellulare portatile, mentre la sezione di trasmissione e ricezione ((17, 24) per una rete telefonica cellulare (31) è in una seconda parte (16) di detto telefono cellulare portatile, detta prima parte (11) e seconda parte (16) essendo fra loro in comunicazione bidirezionale senza fili quando sono separate, caratterizzato dal fatto che detta prima parte comprende mezzi di comunicazione senza fili (23) con una ulteriore stazione o rete (22, 32).
2. Telefono cellulare portatile secondo la rivendicazione 1 caratterizzato dal fatto che la comunicazione bidirezionale senza fili avviene via radio.
3. Telefono cellulare portatile secondo la rivendicazione 2 caratterizzato dal fatto che dette prima parte (11) e seconda parte (16) sono fra loro rimuovibilmente assemblabili.
4. Telefono cellulare portatile secondo la rivendicazione 3, caratterizzato dal fatto che, quando assemblate, la comunicazione bidirezionale senza fili è sostituita da una trasmissione diretta attraverso una connessione elettrica che si stabilisce all'assemblaggio reciproco di detta prima parte (11) e detta seconda parte (16).
5. Telefono cellulare portatile, secondo la rivendicazione 4, caratterizzato dal fatto che la seconda parte (16) comprende un connettore (22) per la ricezione e trasmissione di dati digitali attraverso la rete cellulare (31).
6. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che i mezzi di comunicazione senza fili della prima parte (11) sono costituiti da una connessione a infrarossi (23)
7. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che detta connessione a infrarossi (23) pone la prima parte (11) in comunicazione con un



computer (22).

8. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che i mezzi di comunicazione senza fili della prima parte (11) sono costituiti da un collegamento a breve raggio con la stazione o rete (32).
9. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che i mezzi di comunicazione senza fili della prima parte (11) sono costituiti dal radio link standard utilizzato per la comunicazione bidirezionale con la seconda parte (16).
10. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che la prima parte (11) comprende un connettore SmartCard (29) e/o Multimedia Card (30).
11. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che i mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15) comprendono una tastiera, un visualizzatore e funzioni audio.
12. Telefono cellulare portatile, secondo la rivendicazione 1, caratterizzato dal fatto che comprende funzioni di radio FM e/o funzioni di audio decoder MP3 e/o Voice Memo e Dialling e/o Wap Browser.
13. Sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni, del tipo che prevede di impiegare dei terminali utenti per lo scambio di informazioni con dette stazioni o reti di telecomunicazioni, caratterizzato dal fatto di usare come terminale utente un telefono cellulare portatile comprendente mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15), una sezione di trasmissione e ricezione (17, 24) per una rete telefonica cellulare (31), i mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15) essendo raggruppati in una prima parte (11) di detto telefono cellulare portatile, mentre la sezione di trasmissione e ricezione ((17, 24) per una rete telefonica cellulare (31) è in una seconda parte (16) di detto telefono cellulare portatile, detta prima parte (11) e seconda parte (16) essendo fra loro in comunicazione bidirezionale senza fili quando sono separate, e che detta prima parte comprende mezzi di comunicazione

senza fili (23) con una ulteriore stazione o rete (22, 32), detto sistema comprendendo almeno una delle stazioni o reti di telecomunicazioni (32) atta a comunicare direttamente e senza fili con detti mezzi di comunicazione senza fili (23).

14. Sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni, secondo la rivendicazione 13, caratterizzato dal fatto che la stazione o rete di telecomunicazione (22, 32) è una stazione o rete di comunicazione interna aziendale e/o per clienti abilitati.
15. Sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni, secondo la rivendicazione 14, caratterizzato dal fatto che detta stazione o rete di comunicazione interna aziendale e/o per clienti abilitati è una rete di servizi bancari.
16. Sistema di comunicazione con servizi telematici erogati da stazioni e/o reti di telecomunicazioni, secondo la rivendicazione 13, caratterizzato dal fatto che la stazione o rete di telecomunicazione (22, 32) è una stazione o rete di comunicazione interna domestica.

**RIASSUNTO**

Telefono cellulare portatile del tipo comprendente mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15), una sezione di trasmissione e ricezione (17, 24) per una rete telefonica cellulare (31), i mezzi per eseguire funzioni di interfaccia utente (12, 13, 14, 15) essendo raggruppati in una prima parte (11) di detto telefono cellulare portatile, mentre la sezione di trasmissione e ricezione ((17, 24) per una rete telefonica cellulare (31) è in una seconda parte (16) di detto telefono cellulare portatile, detta prima parte (11) e seconda parte (16) essendo fra loro in comunicazione bidirezionale senza fili quando sono separate. Secondo l'invenzione detta prima parte comprende mezzi di comunicazione senza fili (23) con una ulteriore stazione o rete (22, 32).

## PATENT COOPERATION TREATY

## PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 14 June 2001 (14.06.01)	
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International filing date (day/month/year) 19 September 2000 (19.09.00)	Priority date (day/month/year) 20 September 1999 (20.09.99)
Applicant ZANZI, Massimo	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

18 April 2001 (18.04.01)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Eric LESOT (Fax 338.87.40) Telephone No.: (41-22) 338.83.38
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